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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/540,510

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Stephan Schlitter

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CONNOLLY BOVE LODGE & HUTZ LLP

1875 EYE STREET, N.W.

SUITE 1100

WASHINGTON, DC 20036

EXAMINER

PEPITONE, MICHAEL F

ART UNIT

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1796

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/540,510	<b>Applicant(s)</b> SCHLITTER ET AL.	
	<b>Examiner</b> MICHAEL PEPITONE	<b>Art Unit</b> 1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on 11 April 2008.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-13 and 15-19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-13 and 15-19 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>5/6/08</u> .  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-13 and 15-19 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites the limitation "the expansion factor" in line 6. There is insufficient antecedent basis for this limitation in the claim. Accordingly, dependent claims 2-13 and 15-19 are rejected.

Claim 1 recites the limitation "the catalyst bed" in line 7. There is insufficient antecedent basis for this limitation in the claim. Accordingly, dependent claims 2-13 and 15-19 are rejected.

Claim 1 recites the limitation "the reactor" in line 10. There is insufficient antecedent basis for this limitation in the claim. Accordingly, dependent claims 2-13 and 15-19 are rejected.

Claim 8 recites the limitation "the individual catalyst" in line 1. There is insufficient antecedent basis for this limitation in the claim.

Claim 9 recites the limitation "the bed density" in line 1. There is insufficient antecedent basis for this limitation in the claim.

Claim 15 recites the limitation "the catalysts hourly space velocity" in line 1-2. There is insufficient antecedent basis for this limitation in the claim.

Claim 16 recites the limitation "the superficial velocity" in line 1-2. There is insufficient antecedent basis for this limitation in the claim.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-13 and 15-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Eller *et al.* (WO 99/36459) in view Funk *et al.* (US 6,043,338), when taken with King (US 5,136,106). For the purpose of examination, Eller *et al.* (US 6,362,312) was used as the English translation of Eller *et al.* (WO 99/36459).

Regarding claims 1-3, 10-11, and 15-16: Eller *et al.* teaches a process for preparing polytetrahydrofuran (1:5-12) comprising polymerizing tetrahydrofuran in the presence of at least one telogen and an acid-activated calcium motmorillonite {sheet silicate} catalyst (2:46-59), in a

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circulation reactor wherein the ratio of circulation {8 l/h} to feed {60 ml/h} is about 133:1 {as calculated by examiner} (4:56-58; 6:50-67).

Eller *et al.* does not teach a fluidized bed reactor. However, Funk *et al.* teaches a fluidized bed reactor for reforming a hydrocarbon feedstock under catalytic conditions (col. 2, lines 37-44). Funk also teaches that the feedstock is introduced to the reactor in an upward fashion col. 7, lines 32-40 and Fig. 2). Further, catalyst can be added (col. 7, lines 56-67) or removed (col. 10, lines 17-28) to and from the reactor without disrupting the process or dismantling the reactor (Fig. 13). Funk also teaches the process whereby the catalyst space velocity values fall between 0.2 and 20 per hr ( col. 5, lines 39-43) and the superficial velocity of 1 to 12 m per hr (col. 8, lines 45-47). Eller *et al.* and Funk *et al.* face the same technical difficulty namely, catalyzed continuous process reactions. At the time the invention was made, it would have been obvious to a person skilled in the art to use the teachings of Funk *et al.* concerning a fluidized bed, catalyst rejuvenation reactor in the process of Eller *et al.* and would have been motivated to do so because Funk *et al.* suggest such fluidized reactors provide operational flexibility, and a steady supply of fresh catalyst to the process and improve yields (2:40-44), and is an equivalent alternative means of providing a continuous reactor for THF polymerization.

The Office realizes that all the claimed effects or physical properties are not positively stated by the reference. However, the reference teaches all of the claimed reagents and process steps. Therefore, the claimed effects and physical properties, i.e. an expansion factor less than or equal to 1.15, or from 1.05 to 2, would implicitly be achieved by carrying out the disclosed process. If it is the applicants' position that this would not be the case: (1) evidence would need to be presented to support applicant's position; and (2) it would be the Office's position that the

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application contains inadequate disclosure that there is no teaching as to how to obtain the claimed properties and effects with only the claimed ingredients.

King provides evidence that fluidized bed reactors are utilized for the production of polyethers from cyclic ethers (2:60-63), via anion-bound metal oxide catalysts (2:24-59; 9:1-15).

Regarding claims 4-8, and 17-19: Eller *et al.* teaches acid-activated calcium montmorillonite [instant claim 4-6,] (2:60-3:30; 6:1-6) having a pore volume of 0.4 to 1.0 cm<sup>3</sup>/g [instant claim 7-8 and 17-19] (5:40-44).

Regarding claim 9: Eller *et al.* teaches packing the reactor with 1.2 liters of catalyst extrudates (6:50-53).

Eller *et al.* does not teach 250 to 2500 g/l bed density. However, the Office takes Official Notice that where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation. *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955) [MPEP 2144.05]. At the time of invention a person of ordinary skill in the art would have found it obvious to have optimized the bed density of the catalyst, as taught by Eller *et al.*, as commonly practiced in the art, and would have been motivated to do so since the heat transfer and reaction temperature is influenced by the bed density of the catalysts.

Regarding claims 12-13: Eller *et al.* teaches acetic anhydride [instant claim 13] (3:51-57; 6:50-67) as a telogen to produce polytetrahydrofuran having molecular weights of 250-10,000 dalton (4:15-29) [instant claim 12].

***Response to Arguments***

Applicant's arguments with respect to claims 1-19 have been considered but are moot in view of the new ground(s) of rejection.

Funk *et al.* (US '338) is relied upon for fluidized bed reactor parameters. The prior art King (US '106) discloses polymerization of cyclic ethers in fluidized beds.

The prior art made of record and not relied upon is considered pertinent to applicants' disclosure. See attached form PTO-892.

***Conclusion***

Applicant's submission of an information disclosure statement under 37 CFR 1.97(c) with the fee set forth in 37 CFR 1.17(p) on 5/6/08 prompted the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 609.04(b). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

***Correspondence***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MICHAEL PEPITONE whose telephone number is (571)270-3299. The examiner can normally be reached on M-F, 7:30-5:00 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Eashoo can be reached on 571-272-1197. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/MARK EASHOO, PhD./  
Supervisory Patent Examiner, Art Unit 1796  
7-Jul-08

MFP  
3-July-08